IN THE SPECIFICATION:

Please replace the paragraphs beginning on page 18, line 15, to page 27, line 12, with the following rewritten paragraphs:

In the test pattern, the top (point P1 side) of the drawing is formed in the leading edge of sheet S and the bottom (point ~~P-40~~ P40 side) of the drawing is formed in the trailing edge of the sheet S. The test pattern is created on the surface and back of the sheet S. This example shows a test pattern when a sheet S of 11 inches by 17 inches is used.

FIG. 8 shows a flowchart for adjusting the full-color image forming apparatus 1 on the basis of the test pattern on the sheet S. The sheet S on which the test pattern is formed is set on the image read unit 2 and the test pattern is read (step ~~101~~ S101). The test pattern is read from each of the both sides of the sheet S.

Adjustment values of vertical and horizontal scaling factors are obtained (step ~~102~~ S102). A vertical scaling factor is a scale indicating degrees of expansion and contraction of images (toner images) in a transportation direction of the sheet S, and a horizontal scaling factor is a scale indicating degrees of expansion and contraction of images (toner images) in a direction orthogonal to a transportation direction of the sheet S. In this embodiment, vertical scaling factors are adjusted by adjusting speeds of the belt drive motor 113 driving the intermediate transfer belt 15 through the drive roll 31. Horizontal scaling factors are adjusted by changing write frequencies of the laser diodes 13a of the laser exposing units 13 by the LD drive apparatus 118. Therefore, a vertical scaling factor adjustment value is used as a drive parameter of the belt

drive motor 113 and a horizontal scaling factor adjustment value is used as a drive parameter of the LD drive apparatus 118.

An adjustment value of parallelism is obtained (step ~~103~~ S103). The parallelism is a scale indicating whether images can be drawn in parallel to a transportation direction of the sheet S. In this embodiment, the parallelism is adjusted by changing a nip pressure distribution of the secondary transfer roll 21 and the backup roll 22 in the secondary transfer unit 20 by the transfer nip width adjustment motor 111. Therefore, a parallelism adjustment value is used as a drive parameter of the transfer nip width adjustment motor 111.

An adjustment value of squareness is obtained (step ~~104~~ S104). The squareness is a scale indicating whether images can be drawn in a direction orthogonal to a transportation direction of the sheet S. In this embodiment, the squareness is adjusted by changing mounting angles of the skew mirrors 13f in the laser exposing units 13 by the mirror drive motor 112 and displacing the idle motor 34 stretching the intermediate transfer belt 15 by the belt displacement motor 114. However, main processing is to adjust mounting angles of the skew mirrors 13f; displacement of the idle motor 34 is used as secondarily adjustment technique. Therefore, a squareness adjustment value is used as a drive parameter of the mirror drive motor 112, and in some cases, as a drive parameter of the belt displacement motor 114.

An adjustment value of surface skew is obtained (step ~~105~~ S105). The surface skew is a scale indicating whether the sheet S on the surface of which an image is to be formed is skew with respect to a transportation direction of the sheet S. In this embodiment, the surface skew is adjusted by changing mounting angles of the side guide 65 of the posture correction unit 60 by the side guide drive motor 115. Therefore, a surface skew adjustment value is used as a drive parameter of the side guide drive motor 115.

An adjustment value of surface side/lead registration is obtained (step ~~106~~ S106). The surface side registration is a scale indicating whether the sheet S on the surface of which an image is to be formed is skew to one end thereof (right or left with respect to the transportation direction of the sheet S) with respect to a direction orthogonal to the transportation direction of the sheet S. The surface lead registration is a scale indicating whether the sheet S on the surface of which an image is to be formed is skew to one end thereof (front or back with respect to the transportation direction of the sheet S) with respect to the transportation direction of the sheet S. In this embodiment, the surface lead registration is adjusted by changing the timing (timing of feeding the sheet S to the secondary transfer unit 20) for staring the rotation of the registration roll 61 or adjusting its speed by the registration roll drive motor 116. The surface side registration is adjusted by changing the amount of movement of the registration roll 61 in an axial direction by the side shift motor 117. Therefore, a surface lead registration adjustment value is used as a drive parameter of the registration roll drive motor 116, and a surface side registration adjustment value is used as a drive parameter of the side shift motor 117.

Upon termination of the adjustment of surface side/lead registration, an adjustment value of back skew is obtained (step ~~107~~ S107). The back skew, like the above-described surface skew, is a scale indicating whether the sheet S on the back of which an image is to be formed is skew with respect to a transportation direction of the sheet S. In this embodiment, the back skew is adjusted by changing mounting angles of the side guide 65 of the posture correction unit 60 by the side guide drive motor 115. Therefore, a back skew adjustment value is used as a drive parameter of the side guide drive motor 115.

An adjustment value of back side/lead registration is obtained (step ~~108~~ S108). The back side registration, like the above-described surface side registration, is a scale indicating whether

the sheet S on the back of which an image is to be formed is skew to one end thereof (right or left with respect to the transportation direction of the sheet S) with respect to a direction orthogonal to the transportation direction of the sheet S. The back lead registration, like the above-described surface lead registration, is a scale indicating whether the sheet S on the back of which an image is to be formed is skew to one end thereof (front or back with respect to the transportation direction of the sheet S) with respect to the transportation direction of the sheet S. In this embodiment, the back lead registration is adjusted by changing timing (timing of feeding the sheet S to the secondary transfer unit 20) for staring the rotation of the registration roll 61 or adjusting its speed by the registration roll drive motor 116. The back side registration is adjusted by changing the amount of movement of the registration roll 61 in an axial direction by the side shift motor 117. Therefore, a back lead registration adjustment value is used as a drive parameter of the registration roll drive motor 116, and a back side registration adjustment value is used as a drive parameter of the side shift motor 117.

Whether image formation is to be started is determined (step ~~109j~~ S109). If image formation is performed, adjustments are made on the basis of the adjustment values obtained in the above-described steps ~~102~~ S102 to ~~108~~ S108 (step ~~110~~ S110). After termination of the adjustments, image formation is performed (step ~~111~~ S111) and a series of processing steps terminate. If image formation is not started in step ~~109~~ S109, the image forming apparatus waits for start.

The above-described steps ~~102~~ S102 to ~~108~~ S108 are described in detail. FIG. 9 is a flowchart for obtaining vertical and horizontal scaling factor adjustment values in step ~~102~~ S102.

In this processing, the distance (P2~P16) between point P2 and point P16 is determined from the read test pattern (surface), and on the basis of it, a vertical scaling factor misregistration amount A

$$A = \{(P2\sim P16) - 400\}/400$$

is computed (step ~~201~~ S201). The distance (P2~P16) is theoretically 400 mm. Next, it is determined whether the obtained vertical scaling factor misregistration amount A is smaller than a predetermined permissible vertical scaling factor misregistration amount As (step ~~202~~ S202). If the vertical scaling factor misregistration amount A is equal to or larger than the permissible vertical scaling factor misregistration amount As, a vertical scaling factor adjustment value a corresponding to the vertical scaling factor misregistration amount A is selected on the basis of a predetermined computation expression (step ~~203~~ S203), and the selected vertical scaling factor adjustment value a is stored in the NVM 104 (step ~~204~~ S204). On the other hand, if the vertical scaling factor misregistration amount A is smaller than the permissible vertical scaling factor misregistration amount As in step ~~202~~ S202, control proceeds to the next step.

The distance (P8~P19) between point P8 and point P19 is determined from the read test pattern (surface), and on the basis of it, a horizontal scaling factor misregistration amount B

$$B = \{(P8\sim P19) - 260\}/260$$

is computed (step ~~205~~ S205). The distance (P8~P19) is theoretically 260 mm. Next, it is determined whether the obtained horizontal scaling factor misregistration amount B is smaller than a predetermined permissible horizontal scaling factor misregistration amount Bs (step ~~206~~ S206). If the horizontal scaling factor misregistration amount B is equal to or larger than the permissible horizontal scaling factor misregistration amount Bs, a horizontal scaling factor adjustment value b corresponding to the horizontal scaling factor misregistration amount B is

selected on the basis of a predetermined computation expression (step ~~207~~ S207), the selected

horizontal scaling factor adjustment value b is stored in the NVM 104 (step ~~208~~ S208), and

processing terminates. On the other hand, if the horizontal scaling factor misregistration amount

B is smaller than the permissible horizontal scaling factor misregistration amount Bs in step ~~206~~

S206, processing terminates.

FIG. 10 is a flowchart for obtaining a parallelism adjustment value in step ~~103~~ S103.

In this processing, the distance (P10~P12) between point P10 and point P12 and the

distance (P17~P18) between point P17 and point P18 are determined from the read test pattern

(surface), and on the basis of them, a parallelism misregistration amount C

$$C = (P10 \sim P12) - (P17 \sim P18)$$

is computed (step ~~301~~ S301). Next, it is determined whether the obtained parallelism

misregistration amount C is smaller than a predetermined permissible parallelism misregistration

amount Cs (step ~~302~~ S302). If the parallelism misregistration amount C is equal to or larger than

the permissible parallelism misregistration amount Cs, a parallelism adjustment value c

corresponding to the parallelism misregistration amount C is selected on the basis of a

predetermined computation expression (step ~~303~~ S303), and the selected parallelism adjustment

value c is stored in the NMV 104 (step ~~304~~ S304). On the other hand, if the parallelism

misregistration amount C is smaller than the permissible parallelism misregistration amount Cs

in step ~~302~~ , processing terminates.

FIG. 11 is a flowchart for obtaining a squareness adjustment value in step ~~104~~ S104. In

this processing, the distance (P6~P4) between point P6 and point P4 and the distance (P2~P16)

between point P2 and point P16 are determined from the read test pattern (surface), and on the

basis of them, a squareness misregistration amount D (the distance between a perpendicular to a

line passing through points P6 and P4 extending perpendicularly from point P2, and point 16) is

computed (step ~~401~~ S401). Next, it is determined whether the obtained squareness

misregistration amount C is smaller than a predetermined permissible squareness misregistration

amount Ds (step ~~402~~ S402). If the squareness misregistration amount D is equal to or larger than

the permissible squareness misregistration amount Ds, a squareness adjustment value d

corresponding to the squareness misregistration amount D is selected on the basis of a

predetermined computation expression (step ~~403~~ S403), and the selected squareness adjustment

value d is stored in the NMV 104 (step ~~404~~ S404). On the other hand, if the squareness

misregistration amount D is smaller than the permissible squareness misregistration amount Ds

in step 402, processing terminates.

FIG. 12 is a flowchart for obtaining a surface skew adjustment value in step ~~105~~ S105.

In this processing, the distance (P9~P10) between point P9 and point P10 and the

distance (P11~P12) between point P11 and point P12 are determined from the read test pattern

(surface), and on the basis of them, a surface skew misregistration amount E

$$E = (P9\sim P10)-(P11\sim P12)$$

is computed (step ~~501~~ S501). Next, it is determined whether the obtained surface skew

misregistration amount E is smaller than a predetermined permissible surface skew

misregistration amount Es (step ~~502~~ S502). If the surface skew misregistration amount E is

equal to or larger than the permissible surface skew misregistration amount Es, a surface skew

adjustment value e corresponding to the surface skew misregistration amount E is selected on the

basis of a predetermined computation expression (step ~~503~~ S503), and the selected surface skew

adjustment value e is stored in the NMV 104 (step ~~504~~ S504). On the other hand, if the surface

skew misregistration amount E is smaller than the permissible surface skew misregistration

amount Es in step ~~502~~ S502, processing terminates.

FIG. 13 is a flowchart for obtaining a surface side registration adjustment value and a

surface lead registration adjustment value in step ~~106~~ S106. In this processing, the distance

(P9~P10) between point P9 and point P10, that is, a misregistration amount F of a surface side

registration is determined from the read test pattern (surface) (step ~~601~~ S601):

F = (P9~P10).

Next, it is determined whether the obtained misregistration amount F of the surface side

registration is smaller than a predetermined permissible misregistration amount Fs of surface side

registration (step ~~602~~ S602). If the misregistration amount F of surface side registration is equal

to or larger than the permissible misregistration amount Fs of surface side registration, a surface

side registration adjustment value f corresponding to the misregistration amount F of surface side

registration is selected on the basis of a predetermined computation expression (step ~~603~~ S603),

and the selected surface side registration adjustment value f is stored in the NMV 104 (step ~~604~~

S604). On the other hand, if the misregistration amount F of surface side registration is smaller

than the permissible misregistration amount Fs of surface side registration in step ~~602~~ S602,

control proceeds to the next step.

Next, the distance (P1~P2) between point P1 and point P2, that is, a misregistration

amount G of surface lead registration is determined from the read test pattern (surface) (step ~~605~~

S605):

G = (P1~P2).

Next, it is determined whether the obtained misregistration amount G of surface lead registration

is smaller than a predetermined permissible misregistration amount Gs of surface lead

registration (step ~~606~~ S606). If the misregistration amount G of surface lead registration is equal to or larger than the permissible misregistration amount Gs of surface lead registration, a surface lead registration adjustment value g corresponding to the misregistration amount G of surface lead registration is selected on the basis of a predetermined computation expression (step ~~607~~ S607), the selected surface lead registration adjustment value g is stored in the NMV 104 (step ~~608~~ S608), and processing terminates. On the other hand, if the misregistration amount G of surface lead registration is smaller than the permissible misregistration amount Gs of surface lead registration in step ~~606~~ S606, processing terminates.

Back skew adjustment in step ~~107~~ S107 is made in the same process as the surface skew adjustment shown in FIG. 12, and back side lead registration adjustment in step ~~108~~ S108 is made in the same process as the surface side lead registration adjustment shown in FIG. 13. However, in these processes, a test pattern formed on the back of the sheet S is used. In this embodiment, since various adjustment values a to g are obtained in the processes as described above and adjustments (position adjustment, timing adjustment, and speed adjustment) of different constituent members are made, high-precision registration can be made on the side of the user, with the result that high-quality images can be formed. In addition, since adjustments are made only when the misregistration amounts A to G are larger relative to the permissible misregistration amounts As to Gs, frequent execution of adjustments can be avoided.